SCDHEC-OCRM Stormwater Pond Studies

The coast of South Carolina is developing at a rapid pace. For example, Myrtle Beach grew 36.5% in the 1990s and was recently ranked the 13th fastest growing area in the nation. Growth projections indicate that the Charleston region's population will likely double in the next 20 years.

Development increases hard or impervious surfaces, such as parking lots, rooftops, and roads. These hard surfaces keep rainwater from soaking into the ground. Instead, rainwater can cause localized flooding, or be rapidly channeled into nearby ditches, rivers, and estuaries, often carrying significant water pollutants. Stormwater ponds are the most commonly used development feature to help store stormwater runoff and treat associated water pollution.

Stormwater pond in a residential area.

What are stormwater ponds and what do they do?

- Stormwater ponds protect waterways by trapping pollutants carried in stormwater runoff. They also help prevent localized flooding during and after rainstorms.
- Stormwater ponds are sometimes used for recreation, such as boating and fishing, and can provide habitat for wildlife.
- Rainwater can flow into ponds through groundwater, surface flows, and/or network of pipes.
- Ponds can be linked together in a series, or can function individually.
- Eventually pond water enters a natural waterbody through an outlet pipe or other structure.
- An estimated 8,000 ponds exist in coastal SC, making them a prominent feature of the landscape.

Role of SCDHEC-OCRM

- OCRM encourages the use of stormwater "Best Management Practices" (BMPs) to protect the quality of coastal waters near developed areas.
- OCRM reviews applications for stormwater permits for most new developments and construction projects in the coastal zone.

Why is SCDHEC-OCRM studying stormwater ponds?

- While most stormwater ponds are serving their original purposes (reducing localized flooding and trapping sediments), there is some evidence that other pollutants can build up in ponds and could impact nearby waterways.
- There is a need to determine if older ponds are functioning properly and are not allowing harmful substances to pollute our waters.
- There is a need to understand the effectiveness of stormwater ponds to determine if alternative designs may improve performance.

SC Coastal Stormwater Ponds Initiative

In 2006, a meeting was held with local researchers, stakeholders, and decision makers to identify priority research needs for improved stormwater management. Following on their recommendations, SCDHEC-OCRM initiated several projects to examine current pond conditions and effectiveness. Reports will be available on both studies by June 2007.

- **Baseline Water Quality Study** - Sampled over 100 ponds along the SC coast and measured the following water quality indicators: 1) dissolved oxygen, 2) salinity, 3) algae (chlorophyll), 4) bacteria, and 5) nutrients.
- **Pollutant Removal Study** - Measured water quality indicators and determined if the ponds were decreasing stormwater pollution after rainstorms to protect the environment.

This year, a third study will determine if pond sediments are contaminated, and what, if any, health risks exist. SCDHEC-OCRM's stormwater pond management will be strengthened by the results of these studies.